

JOURNAL OF THEORETICAL BIOLOGY

Chief Editor: J. F. DANIELLI

Editorial Board:

E. A. BARNARD
M. CALVIN
B. G. CRAGG
H. EYRING
D. A. GLASER
D. MAZIA
A. ROBERTSON
C. H. WADDINGTON
L. WOLPERT
M. YČAS
J. Z. YOUNG
B. GOODWIN
B. C. PATTEN

VOLUME 18

January to March 1968



ACADEMIC PRESS
London and New York

Copyright © 1968, by Academic Press Inc. (London) Ltd.

ALL RIGHTS RESERVED

No part of this volume may be reproduced in any form, by photostat, microfilm, or any other means, without written permission from the publishers.

Printed in Great Britain

Contents of Volume 18

Number 1, January 1968

NOACK, D., A Regulatory Model for Steady-state Conditions in Populations of Lysogenic Bacteria	1
WEISS, L., Studies on Cell Deformability. V. Some Effects of Ribonuclease	9
KALLENBACH, N. R., Replication of DNA in Bacteria with Heterogeneous Generation Times	19
PALMITER, M. T. and ALADJEM, F., On the Composition of Insoluble Antigen-Antibody Complexes	34
RAFF, E. C. and BLUM, J. J., A Possible Role for Adenylate Kinase in Cilia: Concentration Profiles in a Geometrically Constrained Dual Enzyme System	53
SCHEUPLEIN, R. J., On the Application of Rate Theory to Complex Multibarrier Flow Co-ordinates: Membrane Permeability	72
SENDOV, BL. and TSANEV, R., Computer Simulation of the Regenerative Processes in the Liver	90
KOCH, A. L., The Evaluation of the Rates of Biological Processes from Tracer Kinetic Data. II. RNA Metabolism in Growing Bacteria	105
KOCH, A. L., Theory of the Angular Dependence of Light Scattered by Bacteria and Similar-sized Biological Objects	133

Number 2, February 1968

BOSSERT, W. H., Temporal Patterning in Olfactory Communication	157
COE, F. L., Mean Life in Steady-state Populations	171
GATLIN, L. L., The Information Content of DNA. II	181
TAKAHASHI, M., Theoretical Basis for Cell Cycle Analysis. II. Further Studies on Labelled Mitosis Wave Method	195

PAVLIDIS, T., ZIMMERMAN, W. F. and OSBORN, J., A Mathematical Model for the Temperature Effects on Circadian Rhythms	210
MUELLER, P. and RUDIN, D. O., Resting and Action Potentials in Experimental Bimolecular Lipid Membranes	222
LETTER TO THE EDITOR—	
YU URBACH, V., Reversible Denaturation of RNA and Memory	259
<i>Number 3, March 1968</i>	
KIEFER, J., A Model of Feedback-controlled Cell Populations	263
LINDENMAYER, A., Mathematical Models for Cellular Interactions in Development. I. Filaments with One-sided Inputs	280
LINDENMAYER, A., Mathematical Models for Cellular Interactions in Development. II. Simple and Branching Filaments with Two-sided Inputs	300
PENNYCUICK, C. J., COMPTON, R. M. and BECKINGHAM, L., A Computer Model for Simulating the Growth of a Population or of Two Interacting Populations	316
GILBERT, M. and CLAVERIE, P., A Theoretical Study of the Electrostatic Interactions in the Intercalation Model of the DNA-dye Complex	330
GOEL, N. S., FUKUDA, N. and REIN, R., A Semi-empirical Analysis of the Melting Curves of Synthetic DNA Molecules and the Calculation of the Stacking and Pairing Energies and Entropies in DNA	350
EVERITT, C. T. and HAYDON, D. A., Electrical Capacitance of a Lipid Membrane separating Two Aqueous Phases	371
ROSEN, R., Some Comments on the Physico-chemical Description of Biological Activity	380
MATSUMOTO, Y., Normalization of Shortening in <i>Rana pipiens</i> Sartorius Muscle	387
LETTER TO THE EDITOR—	
ZELMAN, D. A., An Analysis of the Constant Field Equation	396